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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,163	02/17/2004	Roger A. Mock	DP-310331	1265
7590 01/27/2006				
STEFAN V. CHMIELEWSKI DELPHI TECHNOLOGIES, INC. Legal Staff Mail Code: CT10C P.O. Box 9005 Kokomo, IN 46904-9005		EXAMINER WILLIAMS, ALEXANDER O		
		ART UNIT 2826		PAPER NUMBER
DATE MAILED: 01/27/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,163

Applicant(s)

MOCK ET AL.

Examiner

Alexander O. Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Serial Number: 10/780163 Attorney's Docket #: DP-310331
Filing Date: 2/17/2004;

Applicant: Mock et al.

Examiner: Alexander Williams

Applicant's election of group I, claims 1-6 drawn to an integrated circuit package, classified in class 257, subclass 696, filed 11/14/05 to the election with traverse of species III, figures 5A-5G (claims 1 to 20), filed 10/11/05, has been acknowledged.

This application contains claims 7-20 drawn to an invention non-elected without traverse. Note: Applicant's further request that claims 7-20 of Invention II be canceled without prejudice, needs to be done with a proper amendment canceling these claims with a proper amendment.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Rostoker (U.S. Patent # 5,767,570).

1. Rostoker (figures 1 to 3c) specifically figure 2a show an integrated circuit package **200**, comprising: a first non-conductive substrate **216** having a first inner surface; a second non-conductive substrate **210** having a second inner surface; a die **202** disposed between said first and second inner surfaces, said die having a first thickness; and a leadframe **214,212** including a member having a proximal end and a distal end, said proximal end having a second thickness less than said first thickness, said distal end being disposed between said first and second inner surfaces, said distal end being undulated such that said distal end has an effective thickness greater than said second thickness.

(3) In general terms, the present invention provides package connections to high I/O semiconductor dies by providing at least a first plurality and a second plurality of bond sites on a substrate or leadframe to which electrical connections may be made. ("Bond sites" are formed by the ends of conductive traces or leads which extend inwardly towards a die-receiving area.) In leadframe-type packages (e.g., TAB) the first plurality and second plurality of bond sites are provided in two planes. In substrate-based packages, the first plurality and

second plurality of bond sites may be provided either on the same surface of the substrate or on opposite surfaces of the substrate. When bond sites are provided on the same side of the substrate, one of the two pluralities of bond sites extends into a die-receiving area, while the other is spaced away from the die-receiving area.

(13) The leadframe backing material 216 may be a tape backing, such as mylar or kapton, similar to materials used in other packages. The double-sided semiconductor die 202 has first conductive bump contacts 206 disposed on a first major surface 202a, and second conductive bump contacts 208 disposed on a second major surface 202b. The leadframe 214 comprises a two-tier structure, whereby a first plurality of planar leads 214a extend inwardly in a single plane towards a die-receiving area (described hereinbelow with respect to FIG. 2b), and a second plurality of formed (bent out-of plane) leads 214b are bent downwards (as depicted). Inner ends 215a of the first leads 214a provide contact and mounting points to which the double-sided semiconductor die is connected and mounted via the first bump contacts 206. The planar substrate 210 has conductive traces 212 disposed along one (die-facing) surface thereof. Inner ends 215b of the second leads 214b provide contact and mounting points which are connected and mounted to the inner ends 215b of the traces 212 on the substrate 210, preferably by a re-flow soldering technique. The conductive traces 212 extend inwardly (towards the die) further than the ends of the second leads 214b, and connect to the second conductive bump contacts 208. The second bump contacts are preferably re-flow soldered to the inner ends of the conductive traces 212.

2. The package of claim 1, Rostoker show wherein said effective thickness is approximately equal to said first thickness.
3. The package of claim 1, Rostoker show wherein said distal end is one of offset formed, squirt formed, corrugated formed, and embossed formed.
4. The package of claim 1, Rostoker further comprising: at least one first conductive element attached to said first inner surface and in electrical communication with each of said distal end of said member and said die; and at least one second conductive element attached to said second inner surface and in electrical communication with each of said distal end of said member and said die.

5. The package of claim 4, Rostoker show wherein said at least one first conductive element comprises at least one first bonded copper element, said at least one second conductive element comprising at least one second bonded copper element.
6. The package of claim 4, Rostoker further comprising: at least one first layer of conductive attachment material disposed between said at least one first conductive element and each of said distal end of said member and said die; and at least one second layer of conductive attachment material disposed between said at least one second conductive element and each of said distal end of said member and said die.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/666-678,734,737,738,778,698,691	1/20/06
Other Documentation: foreign patents and literature in 257/666- 678,734,737,738,778,698,691	1/20/06
Electronic data base(s): U.S. Patents	10/25/05

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
1/20/06